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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/625,639      | 07/24/2003  | Hiroki Kaneko        | 520.42879X00        | 8077             |

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| EXAMINER |
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BECK, ALEXANDER S

|          |              |
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| ART UNIT | PAPER NUMBER |
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2629

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 01/03/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/625,639

Applicant(s)

KANEKO ET AL.

Examiner

Alexander S. Beck

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,8-10,12-14,17-22 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-10,12-14,17-22 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Response to Request for Continued Examination

1. Acknowledgment is made of the Request for Continued Examination, filed by the Applicant on October 17, 2006, in which: independent Claims 1 and 13 are amended; and Claims 23-26 are cancelled. Claims 1-6,8-10,12-14, 17-22 and 27 are currently pending in U.S. Application Serial No. 10/625,639, and an Office Action on the merits follows.

### Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 1-6,8-10,12-14, 17-22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (U.S. Patent No. 6,897,996 B2, hereinafter IKEDA) in view of Johnson et al. (U.S. Publication No. 2002/0167480 A1, hereinafter JOHNSON).

As to independent Claims 1 and 13, IKEDA teaches/suggests an electrophoretic display comprising a first (1) and second (2) substrates each being disposed with a predetermined gap therebetween; a layer comprising an insulating solvent (4) and charged particles (5) dispersed in the insulating solvent, the layer being sandwiched between the substrates; a first electrode (7) disposed on one of the substrates; and a second electrode (6) disposed on the second substrate, wherein the second electrode is provided with a reflector function with uneven surface comprising a plurality of bumps in each pixel (IKEDA: column 4, lines 8-34; column 9, lines 7-17; column 10, lines 55-60).

IKEDA does not disclose expressly wherein the first electrode is disposed on the first substrate and the second electrode is disposed on the second substrate in such a manner that the first and second electrodes are opposite to each other; and wherein the first electrode has a network structure with a window in each pixel.

JOHNSON, analogous in art with IKEDA, teaches/suggests an electrophoretic display wherein two first electrodes (6,6') are provided on a first substrate (12) and a second electrode (7) is provided on a second substrate (11) in such a manner that the first and second electrodes are opposite to each other (JOHNSON: page 2, paragraphs [0031-0035]).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electrophoretic display of IKEDA such that the first electrode comprised two electrodes and was disposed on a substrate opposite to that of the

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second electrode, as taught/suggested by JOHNSON. IKEDA as modified by JOHNSON teaches/suggests the first electrode comprising two electrodes (6,6') isolated from one another on the same substrate, and the area between the two electrodes on the first substrate reads on a "window" in each pixel, the first electrode configuration above each pixel comprising a network structure (JOHNSON: page 2, paragraphs [0031-0035]).

The suggestion/motivation for doing so would have been to realize intermediate optical states via electric voltages on the supplementary first electrode (6') (JOHNSON: page 2, paragraph [0031]).

As to Claim 3, IKEDA teaches/suggests wherein the second electrode is in cooperative relation with the reflector (IKEDA: column 4, lines 8-34; column 9, lines 7-17).

As to Claim 10, IKEDA teaches/suggests wherein the charged particles have a low reflection ratio, its color being substantially black (IKEDA: column 5, line 54 – column 6, line 51).

As to Claim 12, IKEDA teaches/suggests wherein active elements 10 are disposed on the second substrate (2) to display picture images by active matrix drive (IKEDA: column 7, lines 25-27).

As to Claim 14, most of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding

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Claims 1,3 and 13, with the exception of: the bumps of the uneven surface are present in the windows of the network structure of the first electrode.

IKEDA teaches/suggests wherein the region of the protrusion is determined according to the portion where the electric strength needs to be intensified between first and second electrodes (IKEDA: column 4, lines 8-34), and is therefore inherent that the combined teachings of IKEDA and JOHNSON, as previously combined in the rejection of Claims 1 and 13 above, would result in the bumps (e.g., protrusions) of the uneven surface present in the windows of the network structure of the first electrode because the protrusions are located in regions in which there are no first electrodes disposed directly above (i.e., a window) so as to intensify the electric strength.

As to Claim 17, IKEDA as modified by JOHNSON teaches/suggests wherein separate electrode segments constitute the first electrode (JOHNSON: page 2, paragraphs [0031-0035]).

IKEDA does not disclose expressly the segments in the same pixel being on the same potential.

JOHNSON teaches/suggests wherein separated electrode segments (6,6') constitute the first electrode, the segments in the same pixel being on the same potential (JOHNSON: page 2, paragraphs [0031-0035]).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the electrophoretic display of IKEDA and JOHNSON such that the separate electrode segments that constitute the first electrode and

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the segments in the same pixel were on the same potential, as taught/suggested by JOHNSON.

The suggestion/motivation for doing so would have been to realize intermediate optical states via electric voltages on the supplementary first electrode (6') (JOHNSON: page 2, paragraph [0031]).

As to Claim 18, IKEDA teaches/suggests wherein active elements (10) are disposed on the second substrate (2) to display picture images by active matrix drive (IKEDA: column 7, lines 25-27).

As to Claim 19, IKEDA teaches/suggests wherein the uneven surface of the reflector comprises a plurality of bumps and concaves (IKEDA: column 4, lines 8-34; column 9, lines 7-17; column 10, lines 55-60).

As to Claim 2, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode comprises a plurality of segments and is disposed on the first substrate (JOHNSON: page 2, paragraphs [0031-0035]).

As to Claim 4, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode is disposed above the uneven surface (e.g., roughened surface) of the second electrode (IKEDA: column 9, lines 7-17) (JOHNSON: page 2, paragraphs [0031-0035]).

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As to Claim 6, IKEDA teaches/suggests wherein the uneven surface (i.e., the roughened uneven surface of the electrode or the light scattering layer formed on the electrode) is patterned at random (IKEDA: column 9, lines 7-17) (i.e., randomly covered with grooves, bumps, protrusions, rivets, etc.)

As to Claim 8, IKEDA teaches/suggests wherein the uneven surface has a string structure of continuous bumps (IKEDA: column 4, lines 8-34).

As to Claim 9, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 17.

As to Claim 27, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode is disposed in areas between the bumps (i.e., visible protrusion in figures) (IKEDA: column 9, lines 7-17) (JOHNSON: page 2, paragraphs [0031-0035]).

As to Claim 5, IKEDA as modified by JOHNSON teaches/suggests wherein the first electrode is disposed in areas corresponding to the flat portions (e.g., between protrusions) of the uneven surface of the second electrode (IKEDA: column 9, lines 7-17) (JOHNSON: page 2, paragraphs [0031-0035]).

As to Claim 20, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 2.



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As to Claim 21, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 5.

As to Claim 22, all of the claim limitations have already been discussed and met by references IKEDA and JOHNSON, as detailed in the above paragraphs regarding Claim 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander S. Beck whose telephone number is (571) 272-7765. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

asb  
12/19/06

  
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SUPERVISORY PATENT EXAMINER